



CHAPTER 6

INFRASTRUCTURE ELEMENT

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6.1 INTRODUCTION

Public infrastructure is an important support network for the City. Well-designed and maintained infrastructure systems are critical to the community's overall goals, as they enhance the quality of neighborhoods and developments, and ensure the health and safety of the community and its residents and businesses. Infrastructure such as water and sewer lines, and storm drain systems must be sufficient to accommodate both the present and future needs of the community. As infrastructure ages or growth outpaces capacity, there is the potential of isolated system failures. The Infrastructure Element addresses the following support infrastructure systems: Water, Sewer, and Storm Drain. In addition, the Element address Storm Water and Urban Water Runoff. Background and existing information for the Element can be found in the General Plan EIR.



6.2 AUTHORITY FOR THE ELEMENT

The State of California Government Code Section 65302 (b) requires that the General Plan include "local public utilities and facilities, all correlated with the land use element of the plan."

6.3 KEY THEMES AND VISION FOR GENERAL PLAN

The water, sewer, and storm drain systems are the lifelines of the City. The City of Garden Grove must plan for the reliability and accessibility of infrastructure to adequately serve both the existing and future users. As infill development continues to occur, the capacity and proper planning of the City's infrastructure systems become increasingly important. Several key questions as the City looks to the future include:

- How can the City upgrade deficient systems and expand existing systems for future users?
- How can adequately planned facilities contribute to growth patterns?
- How can development fees best contribute to facility planning in future growth areas?



WATER SYSTEM

Garden Grove's water supply comes from two sources: imported water from Metropolitan Water District of Southern California (MET), and local groundwater. The primary water supplier within the City is the Garden Grove Water Services Division, serving an area of about 17.8 square miles. The Division serves most of the incorporated City and two small unincorporated neighborhoods: one near Chapman Avenue and Dale Street, and the other near Lampson Avenue and Beach Street. A small area inside the City boundaries is served Golden State Water Company (formerly known as Southern California Water Company).

The City's Water Services Division has been operating 11 active wells with a total capacity of 26,940 gallons per minute (GPM) and four imported water connections. A new well was completed in April 2008, which increases the total well system capacity to 29,330 GPM. In addition, the City also operates eight storage and distribution reservoirs at five sites with a combined volume of 53 million gallons (MG), allowing backup during periods of fireflow demand, peak demands, and/or temporary outages. The storage system is supported by 17 booster pumps that have a total capacity of 41,000 GPM, which will keep the system pressurized under peak flow conditions. The City also maintains nine emergency interconnections with neighboring water systems.

Water infrastructure within the City is vital to the well-being of a community, and must be maintained and improved to meet the needs of residents and the business community alike. As the City ages, the Water Services Division will continue replacing aging infrastructure in certain areas of the City. To this end, the City is currently updating its Water Systems Master Plan to assess the need for replacement and expansion of water facilities.

In addition to water demands placed on the system for domestic and commercial use, the system must be capable of providing adequate pressures for fire-fighting purposes. Since fires can occur at any time, the water system must be ready at all times to provide the required flow. Although Garden Grove does not currently have a reclaimed water system, the City should work with MET and the Orange County Water District to develop new water sources from the upper non-potable aquifer for treatment and for other non-potable use.

WASTEWATER SYSTEM

The Garden Grove Sanitary District (GGSD) provides sewer service to the City of Garden Grove. The wastewater system consists of over 312 miles of gravity sewer pipes constructed between 1923 to the present, 9,700 manholes, and four lift stations. The gravity pipes collect wastewater from the service area and convey it to the Orange County Sanitation District's (OCSD) trunk sewers. The trunk sewers further convey the wastewater to OCSD's two treatments facilities in Fountain Valley and Huntington Beach.

As the population continues to grow, infrastructure facilities, including wastewater will receive additional pressure to serve the community. Many resources are limited, and increasing their availability will present new challenges and require creative techniques to effectively serve the residents, businesses, and other facilities within the City. In 2005, the Garden Grove Sanitary District adopted a Sewer System Management Plan to replace deficient sewers within a 10-year timeframe. The following are the priorities developed in the Sewer System Management Plan for recommended capital improvements:



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1. Facilities that are in severe condition¹ including structural defects of deformed pipes, holes in pipes, broken pipes, and large joint offsets.
 2. Facilities that are in major condition² including pipes with structural defects of multiple fractures, medium joint offsets, and major sags. Pipes with a large number of cracks are also included.
 3. Facilities in moderate condition³ including pipes with fractures, cracks, small and medium joint offsets, and sags.
 4. Facilities in minor condition⁴ including pipes with slight sags, cracks, and small joint offsets.

STORM DRAIN SYSTEM

The City of Garden Grove Public Works Department is responsible for constructing and maintaining flood control channels and storm drains within the City. The system is designed to control the movement of rainwater to a safe location where it can re-charge our natural and man-made water supplies. Most of the collected rainwater is directed to a flood control channel where it flows to the ocean.

Two important planning considerations in regards to storm drain planning include: 1) ensuring adequate capacity to collect and carry storm water is available, and 2) working to reduce pollutants in storm water.

The City of Garden Grove has in the past been subjected to extensive street flooding and occasional property damage, particularly during the 1960s and earlier. Major floods occurred in 1938, 1969, 1978, and 1983, affecting various parts of the City. During peak winter storms, localized flooding damages properties and hinders travel along certain arterial streets. To accommodate new growth and revitalization, the City should continue to maintain and replace aging storm drain systems and minimize the adverse effects of urbanization upon drainage and flood control facilities. Additional information regarding flooding can be found in Chapter 11, Safety Element.

When it rains, pollutants such as trash, litter, silt, automotive chemicals, animal waste, and other contaminants are washed into the storm drains. The Federal Pollution Control Act prohibits the discharge of any pollutant into navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The City of

¹ Severe condition. This category primarily includes structural defects of deformed pipe, hole in pipe, broken pipe, and large joint offsets. Source: *Garden Grove Sanitary District Sewer System Rehabilitation Plan*, submitted to California Regional Water Quality Control Board, Santa Ana Region, September 27, 2005; page 14.

² Major condition. This category primarily includes structural defects of multiple fractures, medium joint offsets and major sags. Pipes with a large number of cracks are also included. Source: *Garden Grove Sanitary District Sewer System Rehabilitation Plan*, submitted to California Regional Water Quality Control Board, Santa Ana Region, September 27, 2005; page 14.

³ Moderate condition. Pipes in this category have fractures, cracks, small and medium joint offsets, and sags. Source: *Garden Grove Sanitary District Sewer System Rehabilitation Plan*, submitted to California Regional Water Quality Control Board, Santa Ana Region, September 27, 2005; page 14.

⁴ Minor condition. Pipes in this category have slight sags, cracks, and small joint offsets. Source: *Garden Grove Sanitary District Sewer System Rehabilitation Plan*, submitted to California Regional Water Quality Control Board, Santa Ana Region, September 27, 2005; page 14.



Garden Grove participants in the NPDES permit program through a partnership with County of Orange, all cities within Orange County, and the County Flood Control District.

STORM WATER AND URBAN WATER RUNOFF

In accordance with the Clean Water Act, a National Pollutant Discharge Elimination System (NPDES) permit is required for certain municipal separate storm sewer discharges into surface waters. The City of Garden Grove is within the region originally covered by Order No. 90-71 issued July 13, 1990. The first permit provided an opportunity for Garden Grove and all other local Orange County municipalities to establish a program customized to its special local conditions. The second permit, issued in 1996, was intended to improve water quality incrementally over time. The third permit, issued in 2002, requires implementation of a program to reduce pollutants in storm water discharges from commercial, industrial, and residential areas to the “maximum extent practical.”

This Element provides a basis for implementing a comprehensive program for improving water quality through a combination of methods that will reduce the level of urban water runoff and pollutants emanating from both private and public properties; thus, enhancing the quality of water discharged from the municipal storm sewer system within the City. The City looks to continue to strengthen its efforts to meet or exceed the requirements of the City’s municipal permit and the related Orange County Drainage Area Management Plan (DAMP).

A guiding principle related to storm and urban water runoff is to improve the quality of local coastal waters, harbors, lakes, and other urban waterways in order to:

- Protect public health and safety.
- Protect and enhance the beneficial uses, such as recreation, aesthetics, economics, and habitat value of the local aquatic systems.
- Reduce pollutants in urban runoff flows.
- Comply with Federal and State regulations.
- Increase public awareness and education.
- Integrate water quality and drainage planning activities.

6.4 GOALS, POLICIES, AND IMPLEMENTATION PROGRAMS

This Element is organized into goals, policies, and implementation programs. A description of each is provided in Chapter 1, Introduction. It is important to note that the implementation programs are specific actions to carry out all of the preceding goals and policies.

WATER SYSTEM

Goal INFR-1	Water systems shall meet the needs of the Garden Grove community.
Policy INFR-1.1	Continue to maintain, improve, and replace aging water systems to ensure the provision of these services to all areas of the community.
Policy INFR-1.2	New development and redevelopment projects shall ensure that water infrastructure systems are adequate to serve the development.
Policy INFR-1.3	Improve water services in a way that respects the natural environment.
INFR-IMP-1A	Update the City’s Water Systems Master Plan, as needed.



INFR-IMP-1B	Design and implement a development monitoring system to evaluate the individual and cumulative impact of proposed development on the service capacity of water facilities. Use this system in the review of development projects and to require mitigation and/or necessary improvements.
INFR-IMP-1C	Make use of specific plans, development agreements, or mechanisms that specify the nature, timing, cost, and financing mechanisms to be used to fund water improvements and services.
INFR-IMP-1D	Utilize, where appropriate, public financing mechanisms, such as special assessment or community facilities districts to fund water improvement and service costs.
INFR-IMP-1E	Review and revise planning and building codes to provide for new technologies (i.e., low flow fixtures, low flow commodes, drought tolerant landscaping, etc.).
INFR-IMP-1F	Promote incentive regulations to increase the efficiency of the water system.
INFR-IMP-1G	Develop new source of non-potable water for treatment and other non-potable uses.

WASTEWATER SYSTEM

Goal INFR-2	Adequate wastewater facilities shall be provided to serve new and existing development within the City.
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Policy INFR-2.1	Continue to maintain, improve and replace aging wastewater systems to ensure the provision of these services to all areas of the community.
Policy INFR-2.2	Continue to coordinate with the Garden Grove Sanitary District (GGSD) and Orange County Sanitation District (OCSD) to ensure existing wastewater systems are maintained and upgraded and new wastewater facilities are constructed, as needed.
Policy INFR-2.3	Support sustainable wastewater services that respect and improve the natural environment.
INFR-IMP-2A	Update the City's Sewer Master Plan and Sewer System Management Plan, as necessary.
INFR-IMP-2B	Update development fee and assessment district fee structures, as necessary, to require all new development to pay its fair share of the cost of all essential wastewater improvements.
INFR-IMP-2C	Make use of specific plans, development agreements, or mechanisms that specify the nature, timing, cost, and financing mechanisms to be used to fund wastewater improvements and services.
INFR-IMP-2D	Promote incentive regulations and new technologies to increase the efficiency of the wastewater treatment system.

INFR-IMP-2E Coordinate with the Orange County Sanitation District in the Fats, Oils, and Grease (FOG) Program and other educational programs to eliminate the improper disposal of waste into the wastewater system.

STORM DRAIN SYSTEM

Goal INFR-3	Storm drain service levels shall be maintained and/or improved throughout the City.
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Policy INFR 3.1 Cooperate with local, State, and Federal flood control agencies to reduce the potential for flood damage in the City.

Policy INFR 3.2 Continue to maintain and replace aging storm drain systems to ensure the provision of these services to all areas of the community.

Policy INFR 3.3 Minimize the adverse effects of urbanization upon drainage and flood control facilities.

Policy INFR 3.4 Improve the storm drain system in a way that respects the environment.

INFR-IMP-3A Continue to participate in the NPDES permit program.

INFR-IMP-3B Require new development and redevelopment projects (greater than one acre) to provide a Water Quality Management Plan.

INFR-IMP-3C Use natural features such as bioswales, wildlife ponds, and wetlands for flood control and water quality treatment when feasible.

INFR-IMP-3D Continue to require the implementation of adequate erosion control measures for development or redevelopment projects in order to minimize sedimentation damage to drainage facilities.

INFR-IMP-3E Utilize development fees, redevelopment funds, drainage fees and other funding sources to assure that development of drainage facilities corresponds with development within the City.

INFR-IMP-3F Identify and improve areas experiencing localized storm drainage problems for storm drain improvements.

INFR-IMP-3G Update the City's Master Plan of Drainage, as necessary.

Related Goals and Policies: Refer to the Conservation Element, Goal CON-2.

STORM AND URBAN WATER RUNOFF

Goal INFR-4	The City is committed to improved water quality resulting from storm and urban water runoff from existing and future development.
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Policy INFR-4.1 Provide sufficient levels of storm drainage service to protect the community from flood hazards and minimize the discharge of materials into the storm drain system that are toxic or which would obstruct flows.



Policy INFR-4.2	Fund and undertake storm drain improvement projects as identified in the City of Garden Grove Capital Improvement Plan.
Policy INFR-4.3	Cooperate in regional programs to implement the National Pollutant Discharge Elimination System program.
Policy INFR-4.4	Develop an industrial/commercial inspection program to comply with the requirements of the National Pollutant Discharge Elimination System program.
Policy INFR-4.5	Conduct routine preventative maintenance activities related to municipal activities that are considered effective Best Management Practices (BMP) for pollutant control.
Policy INFR-4.6	Work with other agencies to develop a program for Model Maintenance Procedures for Public Agency Activities to address municipal activities' pollution prevention and treatment.
Policy INFR-4.7	Perform drainage facility and infrastructure maintenance activities to comply with the requirements of the National Pollutant Discharge Elimination System program.
Policy INFR-4.8	<p>Consider structural measures or source control programs for the following drainage areas that would provide enhanced water quality benefits beyond what can be achieved through routine measures employed to meet NPDES permit requirements:</p> <ul style="list-style-type: none"> ▪ Wintersburg Channel Drainage Area ▪ Anaheim Barber Channel Drainage Area ▪ Bolsa Chica Drainage Area
Policy INFR-4.9	Identify key properties throughout the City with substantial land area that may be subject to future development or redevelopment that could incorporate water quality features.
INFR-IMP-4A	<p>Continue to participate in education and public information activities to present a consistent message on storm water pollution prevention. The education should inform public and municipal staff about the origins and causes of storm water pollution and promote behavioral changes to control pollutants at the source. Outreach can include, but is not limited to:</p> <ul style="list-style-type: none"> ▪ Public service announcements through its cable television productions ▪ Community newsletters ▪ Recycling and water pollution brochures ▪ Utility bill inserts ▪ City-sponsored events with litter and debris clean-up ▪ 24-hour water pollution reporting hotline ▪ City website postings or educational materials

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- INFR-IMP-4B Continue to participate with other agencies on public education and outreach materials for countywide distribution to focus on public education and business activities with the potential to pollute. Distribute Best Management Practices (BMP) guidance for business activities, including but not limited to, mobile detailing, pool maintenance, restaurant cleaning operations, and automotive service centers.
- INFR-IMP-4C Consider implementing targeted local public information and outreach efforts for restaurant operations, landscape and concrete construction contractors, and school outreach programs.
- INFR-IMP-4D Continue to implement the City’s residential informational and outreach program by providing homeowners with Best Management Practices (BMP) to address high threat activities, such as, but not limited to:
- Disposal of garden waste
 - Disposal of household hazardous waste
 - Disposal of pet waste
 - Garden care and maintenance
 - Vehicular repair and maintenance
 - Vehicular washing
- INFR-IMP-4E Prepare informational brochures that explain the best methods to reduce runoff containing pollutants from residential areas. Distribute the brochures to existing residents, homeowner associations and new residential developments.
- INFR-IMP-4F Consider whether the industrial/commercial inspection should be an expansion of the existing inspection program or the development of a new inspection process. The inspection program shall include, but not be limited to:
- Inventory and develop database of industrial facilities based on filed business permits
 - Inventory and develop database of commercial facilities, such as automobile repair stations, mobile washing operations, pool maintenance operations, landscapers, painting, etc.
 - Prioritize and inspect industrial and commercial facilities based on high-, medium-, or low-threat to water quality
 - Conduct inspections to ensure compliance with ordinances and NPDES permit requirements
 - Provide informational brochures explaining Best Management Practices (BMP) for the industrial/commercial facility inspectors to distribute
- INFR-IMP-4G Continue to annually report the City’s activities as part of its submittal to the Santa Ana Region Water Quality Control Board. Activities the City should report on include, but are not limited to:
- Litter Control
 - Solid Waste Collection/Recycling
 - Drainage Facility Maintenance
 - Catch Basin Stenciling
 - Street Sweeping



	<ul style="list-style-type: none"> ▪ Household Hazardous Waste Collection ▪ Emergency Spill Response ▪ Fertilizer and Pesticide Maintenance ▪ Fixed-Facility Inspections ▪ Sewer System Operation and Maintenance
INFR-IMP-4H	Continue to review and update procedures, activities, and staff training to comply with the Model Maintenance Procedures for Public Agency Activities program, as necessary.
INFR-IMP-4I	Review and update the litter control program, as necessary, and consider the findings and recommendations of the Orange County PRFD.
INFR-IMP-4J	Continue to implement the City's illegal discharge and illicit connection elimination program.
INFR-IMP-4K	<p>Consider the potential opportunities for the Wintersburg Channel Drainage Area:</p> <ul style="list-style-type: none"> ▪ Address sediment buildup downstream from Twin Lakes Park ▪ Increase size and effectiveness of the water quality feature in Twin Lakes Park ▪ Potential significant opportunities for incorporating water quality features into future development along the Harbor Corridor area/International West Focus Area ▪ Clean-up and protect channel in vicinity of area schools to reduce trash and debris accumulation ▪ Consider school fields and park sites for detention and/or retarding basins
INFR-IMP-4L	<p>Consider the potential opportunities for the Anaheim Barber Channel Drainage Area:</p> <ul style="list-style-type: none"> ▪ Improve/restore channels to enhance aesthetics and treatment potential ▪ Potential significant opportunities for incorporating water quality features into future development in the area ▪ Clean-up and protect channel in vicinity of area schools to reduce trash and debris accumulation ▪ Consider school fields and park sites for detention and/or retarding basins
INFR-IMP-4M	<p>Consider the potential opportunities for the Bolsa Chica Channel Drainage Area:</p> <ul style="list-style-type: none"> ▪ Improve/restore channels to enhance aesthetics and treatment potential ▪ Potential significant opportunities for incorporating water quality features into future development in the area ▪ Clean-up and protect channel in vicinity of area schools to reduce trash and debris accumulation ▪ Consider school fields and park sites for detention and/or retarding basins
INFR-IMP-4N	Consider incorporating water quality features into new or redevelopment projects with sufficient land area. These features could address both project-specific and other local impacts.

CAPITAL IMPROVEMENT PROGRAM

Goal INFR-5	A satisfactory Seven-Year Capital Improvement Program.
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- Policy INFR-5.1 Ensure that the Seven-Year Capital Improvement Program (CIP) meets the City's needs.
- Policy INFR-5.2 Ensure that the Seven-Year Capital Improvement Program (CIP) meets Measure M requirements.
- INFR-IMP-5A Amend as necessary and adopt a Seven-Year Capital Improvement Program.

